

# AMERICAN BUREAU OF SHIPPING

TUE. 15 JAN. 1921

Date April 22, 1920.

REPORT NO. 264	<b>REPORT ON TURBINE PROPELLING MACHINERY</b>	PORT New York
NO. IN RECORD	NAME OF VESSEL "HOPATCONG"	PORT OF REGISTRY
CLASS	BUILT BY Groton Iron Works	WHERE BUILT Groton, Conn.
GROSS TONNAGE	OWNERS U. S. SHIPPING BOARD	YEAR OF CERTIFICATE
WHEN BUILT 1920	TURBINES BUILT BY Vulcan Iron Works, Turbine #7	WHERE BUILT Jersey City, NJ
SINGLE OR TWIN SCREW Single	TYPE OF TURBINE Parsons Compound Impulse & Reaction	BOILER PRESSURE
TYPE OF REDUCTION GEAR	REDUCTION GEAR BUILT BY The Falk Co., Milwaukee, Wis.	WHERE BUILT

### TURBINE DATA

Shaft Horse Power Normal      2800	Shaft Horse Power Maximum
Revolutions Normal      3600 to 90	Revolutions Maximum

### PARTICULARS OF BLADING

H. P. AHEAD			H. P. ASTERN		
LOCATION	Effective Height of Blades	Pitch Diameter	LOCATION	Effective Height of Blades	Pitch Diameter
H. P. End	5/8"	13-5/8"	H. P. End	7/8"	26"
1st Reduction Stage	13/16"	13-13/16"	1st Reduction Stage	1-5/8"	26"
2nd Reduction Stage	1-1/16	14-1/16	2nd Reduction Stage	2-3/8	26
3rd Reduction Stage	1-3/8	14-3/8	3rd Reduction Stage		
4th Reduction Stage	1-1/8	17-1/8	4th Reduction Stage		
5th Reduction Stage	1-7/16	17-7/16	5th Reduction Stage		
<del>Exhaust End</del> 6th Red.	1-7/8	17-7/8	Exhaust End		
Exh. End	2-3/8	18-3/8			

1st Visit	
No. of Visits      6	Last Visit      April 22nd, 1920.
Fees	(Signed) WALTER F. ALEXANDER Surveyor
Expenses	_____ Chief Surveyor
TOTAL	This report consists of _____ sheets attached hereto

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## PARTICULARS OF BLADING

L. P. AHEAD			L. P. ASTERN		
LOCATION	Effective Height of Blades	Pitch Diameter	LOCATION	Effective Height of Blades	Pitch Diameter
Inlet End	2-1/4	2'-0-1/4	Inlet End	1-3/4	2'2
1st Reduction Stage	2-13/16	2'-0-13/16	1st Reduction Stage	3-3/8	2'2
2nd Reduction Stage	3-1/2	2'-1 1/2	2nd Reduction Stage	5	2'2
3rd Reduction Stage	4-3/8	2'2-3/8	3rd Reduction Stage		
4th Reduction Stage	5	2'3	4th Reduction Stage		
5th Reduction Stage	5	2'3	5th Reduction Stage		
<del>6th Red. Stage</del>	5	2'3			
Exhaust End	5	2'3	Exhaust End		

## TEST PRESSURE APPLIED

H. P. End	240	3rd Reduction Stage	240	Exhaust End	30 lbs.
1st Reduction Stage	240	4th Reduction Stage	"		
2nd Reduction Stage	"	5th Reduction Stage	"		

## GENERAL DATA FOR TURBINE

Area of 1st Stage Nozzles		Area of Overload Nozzles	
Diameter of Throttle Valve	6"	Tested to	

## BEARINGS

	HIGH SPEED PINION		LOW SPEED PINION	
	High Pressure	Low Pressure	High Pressure	Low Pressure
No. of Bearings				
Diameter				
Length				
Dist. Between Centers				
	MAIN GEAR SHAFT	H. P. TURBINE	L. P. TURBINE	
No. of Bearings				
Diameter				
Length				
Dist. Between Centers				



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## GEARING

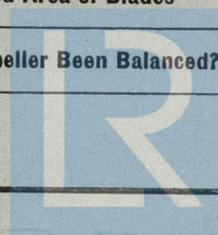
	1st REDUCTION		2nd REDUCTION	
	High Pressure	Low Pressure	High Pressure	Low Pressure
Pitch Diameter of Pinion				
Total Length of Pinion				
Revolutions of Pinion				
Peripheral Velocity				
Number of Teeth				
Pitch of Teeth				
Angle of Helix				
Pitch Diameter of Gear				
Revolutions of Gear				

## SHAFTING

Turbine Shaft Diam. High Pressure	2nd Reduction Pinion Shaft Diam. High Pressure
Turbine Shaft Diam. Low Pressure	2nd Reduction Pinion Shaft Diam. Low Pressure
1st Reduction Pinion Shaft Diam. High Pressure	Main Gear Shaft Diam.
1st Reduction Pinion Shaft Diam. Low Pressure	Turbine Thrust Type
Thrust Bearing Type	Diameter of Couplings
Thrust Shaft Diameter	No. and Diameter of Shaft Coupling Bolts
Number of Collars	Propeller Shaft Diameter
Diameter of Collars	Type of Sleeve
Intermediate Shafting, No. of Lengths	Thickness of Sleeve
Intermediate Shafting Diameter	Diameter of Thread at End

## PROPELLER

Material	No. and Size of Bolts
No. of Blades	How Fitted to Shaft
Solid or Sectional	Developed Area of Blades
Diameter	Has Propeller Been Balanced?
Pitch	



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### INDEPENDENT AUXILIARIES

DESCRIPTION	No. of	Type	Maker	Steam Cyl.	Water Cyl.	Stroke	Dia. Disch.	Dia. Suct'n
Main Feed Pump								
Auxiliary Feed Pump								
Circulating Pump								
Air Pump								
Ballast Pump								
Bilge Pump								
General Serv. Pump								
Fire Pump								
Oil Fuel Transf. Pump								
Oil Burner Pump								
Fresh Water Pump								
Evap. Feed Pump								
Injector								

### PUMPING ARRANGEMENTS

DESCRIPTION	SUCTION CONNECTIONS	DISCHARGE CONNECTIONS
Main Feed Pump		
Auxiliary Feed Pump		
Circulating Pump		
Air Pump		



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### PUMPING ARRANGEMENTS (Continued)

DESCRIPTION	SUCTION CONNECTIONS	DISCHARGE CONNECTIONS
Ballast Pump		
Bilge Pump		
General Serv. Pump		
Fire Pump		
Oil Fuel Trans. Pump		
Oil Burner Pump		
Fresh Water Pump		
Evap. Feed Pump		
Injector		



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### BILGE AND BALLAST CONNECTIONS

COMPARTMENT	BILGE SUCTION DIAMETERS			BALLAST SUCTION DIAMETERS		
	Port	Starboard	Center	Port	Starboard	Center
No. 1 Hold						
No. 2 Hold						
No. 3 Hold						
No. 4 Hold						
No. 5 Hold						
No. 6 Hold						
Boiler Room						
Engine Room						
Fore Peak						
After Peak						

### FEED HEATING APPLIANCES, ETC.

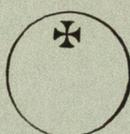
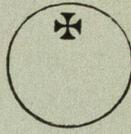
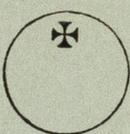
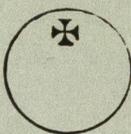
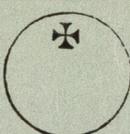
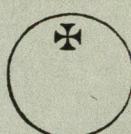
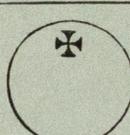
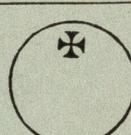
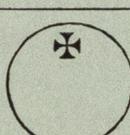
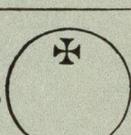
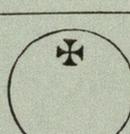
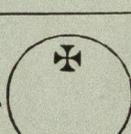
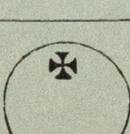
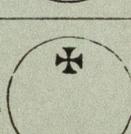
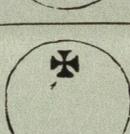
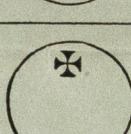
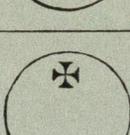
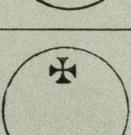
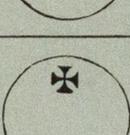
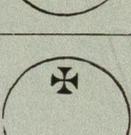
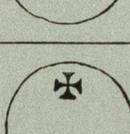
DESCRIPTION	No. of	Size	Type	Maker	Heat. Surf. or Capacity	REMARKS
Auxiliary Condenser						
Feed Water Heater						
Evaporator						
Filters						
Distiller						



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### FORGINGS AND CASTINGS

FORGINGS	Stamped	CASTINGS	Stamped
	A.B. 		A.B. 
	A.B. 		A.B. 
	A.B. 		A.B. 
	A.B. 		A.B. 
	A.B. 		A.B. 
	A.B. 		A.B. 
	A.B. 		A.B. 
	A.B. 		A.B. 
	A.B. 		A.B. 
	A.B. 		A.B. 
	A.B. 		A.B. 



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### HULL MACHINERY

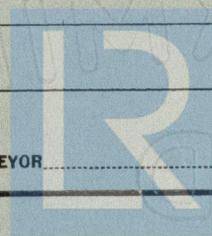
DESCRIPTION	No. of	Size	Type	Maker	REMARKS
Steering Engine					
Capstan					
Windlass					
Winches					

### SPARE GEAR

DESCRIPTION	No. of	DESCRIPTION	No. of	DESCRIPTION	No. of
Connecting Rod Top End Bolts		Safety Valve Springs			
Connecting Rod Bottom End Bolts		Fire Bars			
Main Bearing Bolts					
Coupling Bolts					
Set of Feed and Bilge Pump Valves					
Set of Piston Springs					

### REMARKS

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### STEAM DRUM

Diameter	42"	Thickness of Shell	17/32"
Length	9' 8-1/2"	Thickness of Heads	5/8"
Are Heads Convex, Concave or Flat?	Convex	Are Heads Stayed?	No

### RIVETING FOR STEAM DRUMS

LOCATION	Type of Joint	Diameter of Rivet Holes	Pitch	No. of Rivets in 1 Pitch	
				Single Shear	Double Shear
Longitudinal Seams	Dbl. Butt Strap E.E.	15/16"	3.577		2
Circular Seams	Lap S.R.	15/16"	2.537	1	

### MUD DRUMS

No. of	Are Screwed Fittings Used?
Type	Thickness of Tube Sheet
Material	Thickness of Shell
Inside Diameter	Thickness of Heads
Type of End Connection	

### RIVETING FOR MUD DRUMS

LOCATION	Type of Joint	Diameter of Rivet Holes	Pitch	No. of Rivets in 1 Pitch	
				Single Shear	Double Shear
Longitudinal Seams					
Circular Seams					

### VERTICAL TUBE BOILER—BOTTOM HEADER

Description	Thickness of Tube Plate
Thickness of Shell Plate	Method of Attaching Tubes
Thickness of Heads	Method of Attaching to Mud Drums

### VERTICAL TUBE BOILER—TOP HEADER

Description	Thickness of Tube Plate
Thickness of Shell Plate	Method of Attaching Tubes
Thickness of Heads	Method of Attaching to Mud Drums

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### TYPE OF WATER LEGS

Description <b>Box type</b>	Thickness of Handhole Sheet <b>17/32"</b>
Thickness of Tube Sheet <b>17/32"</b>	Thickness of Sides <b>17/32"</b>

### STAYS

Diameter <b>1-9/16" O.D. 3/4" I.D.</b> <b>1.476 sq. in.</b>	Type of Stays <b>Hollow rolled</b>
No. of Threads per Inch <b>11-1/2"</b>	Area Supported <b>5.75 x 6.387</b> <b>39.78 sq. in.</b>

### MAIN TUBES

Diameter <b>3-1/2"</b>	Effective Length <b>11' 10-7/16"</b>
Thickness <b>#9 and 10 W.B.G.</b>	Material <b>Lap steel</b>

### SUPERHEATERS

Type of Superheater	Heating Surface
Amount of Superheat in Degrees	Can Superheater Be Cut Out?
Is Saturated Mixing Valve Fitted?	Tested to <span style="float: right;">Lbs.</span>

### BOILER MOUNTINGS

LOCATION	Type of Valve	Size	Material	Remarks
Main Steam				
Auxiliary Steam				
Safety Valve				
Main Feed Stop				
Main Feed Check				
Auxiliary Feed Stop				
Auxiliary Feed Check				
Surface Blow				
Bottom Blow				
Water Column Valves				
Whistle Valve				

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## TESTING

Hydrostatic Pressure Applied	Date Applied
Steam Test Made at	Date Steam Test Was Made
Safety Valve Set to	Accumulation of Pressure During 15 Minutes Full Firing
Hydrostatic Test Witnessed by	Steam Test Witnessed by

## GENERAL DATA

Have Materials Been Tested in Accordance with the A. B. S. Rules?	Yes	Minimum Tensile Strength of Shell Plate	58000 lbs.
Are Buttstraps of Equal Width?	Yes	Are All Holes Drilled?	Punched and reamed
No. of Manholes in Steam Drum	One	Size	11" x 15"
No. of Manholes in Mud Drums		Size	
Are Boilers Insulated?		Is Feed Water Heated?	
Temperature of Feed Water at Boiler		Are Salinometer Cocks Fitted?	
Are Steam Drums Fore and Aft or Athwartship?	Athwartship	Are Boilers Secured Adequately to Saddles or Foundations?	
Method of Connecting Tubes to Header or Water Legs	Expanded and flared	Method of Connecting Header to Steam Drum	tubes expanded & flared

## REMARKS

Boilers tested to 450 lbs. hydrostatic pressure accepted and  
stamped A.B. -157

(Shipped to the Emergency Fleet Corp. c/o Groton Iron Wks.,  
Midway, Conn.

Cont. P.D. 4210

Superheaters not attached to boilers and not tested.

Surveyor (signed) B.L. Foster

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